REMARKS

Applicants have amended the claims to better define the invention. Applicants have amended the abstract to remove the sentence explaining the purpose of the flats. Applicants respectfully traverse the rejection of the claims over the cited references and respectfully request reconsideration.

Claim 1, 4, 6, 8 and 9 were rejected over Scales '038. Claim 1 as amended requires a substantially flat depression in the cone shell extending between each of the compacts in a row. In Scales, the depressions are concave recesses, not substantially flat. The concave recesses of Scales appear to reduce the supporting metal between the inserts by a considerable amount. Applicants are able to achieve increased compact projection without extensive loss of cone support metal by forming substantially flat depressions.

Claim 1 also distinguishes over Cisneros '213. Cisneros '213 deals with a milled tooth bit. Referring to Figure 5, teeth 80 are not compacts mounted holes in the cone shell, rather they are machined from the cone body. The surfaces 79 between adjacent teeth 80 comprise roots of the teeth. There is no mention in the specification of roots 79 being flat, and applicants submit that roots 79 are not flat. In Figure 5 root 79 is conical, having a convex central portion and concave end portions where the roots join teeth 80. Figures 14A and 14B show what might at first glance appear to be a flat root portion, but a closer inspection reveals that it is curved also. In Figure 16, the root is concave and has a ridge 84 at its mid point. In Figure 22B, roots 79 are concave, not substantially flat depressions.

Applicants submit that neither reference shows flat depressions between holes for inserts. Moreover, even if roots 79 of Cisneros were flat, there is no motivation to combine Cisneros with Scales to make the concave recesses of Scales flat. Cisneros deals with contouring teeth

machined on a steel cone body, not cones having tungsten carbide compacts press-fitted into holes of the cone.

Claim 2 as amended requires that each of the depressions have leading and trailing ends that intersect adjacent ones of the holes. Referring to Figure 2, leading and trailing ends 45 and 47 intersect holes 33. In Scales, the leading and trailing ends of each recess are spaced considerable distances from the adjacent holes. There are no holes in Cisneros, thus even if combined, the combination would not disclose substantially flat depressions that have leading trailing ends that intersect adjacent ones of the holes.

Claim 3 defines each of the depressions to have a perimeter with inner and outer portions that curve away from each other and leading and trailing portions that curve toward each other. Inner and outer portions 41, 43 and leading and trailing portions 45, 47 are shown in Figure 2 of this application. The recesses of Scales do not have leading and trailing portions that curve toward each other, rather the leading and trailing portions are straight and perpendicular to the direction of rotation of the cone. Further, the leading and trailing portions do not intersect the holes as required in claim 3, rather each straight side is spaced from the adjacent holes. Roots 79 of Cisneros do not intersect holes, rather blend into flanks of adjacent milled teeth.

Claim 4 requires that each depression lie in a single plane from an intersection of one hole with an exterior of the cone shell to an intersection of an adjacent hole with an exterior of the cone shell. The recesses of Scales do not lie in a plane, rather they are concave. They do not extend from one hole to another. Roots 79 of Cisneros do not intersect adjacent holes and do not lie in a single plane.

Claim 5 requires that each of the depressions have a generally elliptical perimeter with leading and trailing ends that curve away from each other. In Scales, the leading and trailing ends of each recess are straight, not curved.

Claim 6 requires that each of the depressions extend between and have leading and trailing ends that intersect adjacent holes. As previously mentioned, the recesses of Scales do not intersect adjacent holes. Cisneros does not disclose holes, rather discloses milled teeth.

Claim 7 requires that each depression be a flat surface located in a single plane, and this is not shown by the references singly or combined. Claim 8 requires that each of the leading and trailing ends have an axial dimension that is not greater than the diameter of the adjacent holes. In the example of Figure 2 of this application, ends 45 and 47 do not extend for the full diameter of each hole 33. Each end 45, 47 does not extend from a 0 degree to 180 degrees point on hole 33. Rather the intersection of end 45, 47 extends along hole 33 an amount less than 180 degrees. In Scales, the straight ends of the recesses extend a distance farther than the diameter of the adjacent holes.

Claim 9 states that the conical band that contains the depressions has conical portions axially inward and outward of each of the depressions. As shown in Figure 2 of this application, flats 35 do not extend the full width of the conical band 31. Rather, portions of the conical band are located both on the inward and the outward side of each flat 35. In Scales, there is no conical portion on the outer side of any of the recesses. Rather each recess extends completely to the outer edge of the conical band, where it intersects a gage surface.

Claim 10 requires that the leading and trailing ends curve toward each other. In Scales, the leading and trailing ends are straight. Claim 11 requires that the leading and trailing ends of each depression curve toward each other, and further requires that each of the depressions have

inward and outward edges that curve away from each other. In Figure 2, inward and outward edges are indicated by the numerals 41, 43 while the leading and trailing edges are indicated by the numerals 45 and 47.
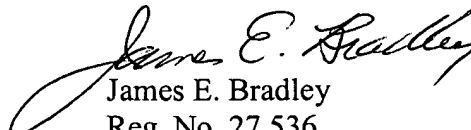
Claim 13 requires that each of the flats be located in a single plane perpendicular to its radial line. Claim 13 also requires that the circumferentially spaced-apart ends of the flats intersect adjacent ones of the holes.

Claim 14 requires that each of the ends of each of the flats curve along a radius that is the same as a radius of the hole that it intersects. According to the example of Figure 2 of this application, each end 45, 47 is curved at the same radius of the hole 33 that it intersects.

Claim 15 requires that the ends of the flats have axial dimensions not greater than the diameter of the adjacent holes. As mentioned, in Scales, the straight ends of each recess have greater lengths than the diameters of the holes containing the adjacent compacts. Claim 16 is similar to claim 9, previously discussed.

It is respectfully submitted that the claims are now in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,

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